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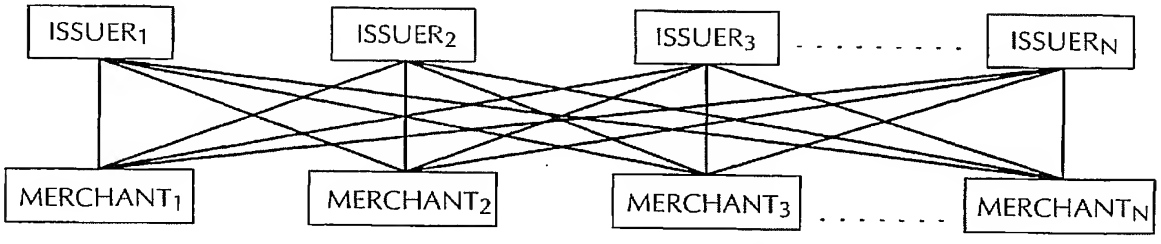

(57) Abstract: An automated payment system, such as for credit cards, is provided which compiles customer financial account information from a plurality of financial institutions. The system receives account information from the financial institutions, and compiles the information in central location. The system presents financial account information to the customer. The system then receives and stores a selection of at least one of the financial accounts of the customer and provides the selected financial account information to a merchant, biller or payment processor.

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AUTOMATED PAYMENT SYSTEM

FIELD OF THE INVENTION

The present invention relates to computerized billing and payment systems. In particular, the invention relates to an automated credit card payment system that matches a customer's information, fingerprint, retina scan voice, or other biometric measurement and/or a unique personal identifier ("UPI") with financial account information consolidated from multiple financial institutions and selects, or allows customers to select, a financial account for use in paying bills, invoices and other obligations.

BACKGROUND OF THE INVENTION

Most companies that provide continual services can automatically bill their customers on a regular basis. To increase customer retention, as well as reliability in payments, and also to avoid the need for repeated billings of past due accounts, companies

increasingly offer customers the option of making payments through the customer's credit card. However, the need for customers to retrieve the credit card they wish to use, coupled with the customer's perception that writing their credit card account number on a bill and mailing it is not secure, hinders many customers from taking advantage of this convenient payment method.

Second, when a customer desires to purchase goods or services on the Internet, they usually give the merchant their credit card information as a form of payment. Since there are millions of merchants on the Internet, it is becoming increasingly difficult for the consumer and for credit card organizations to control fraud. From the moment the consumer presses "send" on the merchant's website, their credit card is exposed. Their card number can be intercepted by perpetrators en route to the merchant, or it can be "hacked" from the merchant's database once it is received. In addition, the fact that there are millions of merchants and that that number is growing exponentially, makes it virtually impossible to ensure that the merchant is a legitimate company and not merely in existence to perpetrate credit card fraud.

Third, when a customer purchases goods or services with a traditional bricks-and-mortar merchant, they must have their credit card with them, and they must give it to the merchant so that the credit card can be processed. Given this conventional scenario, the consumer is vulnerable when the credit card is lost or stolen. They are also vulnerable if the merchant or any employee decides to use the credit card number in a fraudulent manner.

Thus, there is a need for a system that provides customers the ability to efficiently match their financial account information with their UPI, allowing them to purchase goods or services with their credit card or other financial account, without presenting the actual card. The aim of this system is to optimize customer security and privacy interests.

SUMMARY OF THE INVENTION

The present invention is for a system and related method for payment of bills, purchases, or other payments which compares a UPI or a merchant/biller's database of subscribers, customers, potential customers, prospects, or accounts receivables, sometimes referred to herein collectively as "customers", either with a consolidated database of financial account information such as credit card account information, or with a plurality of non-consolidated databases of financial account information, or with a combination of the two types. Many types of financial account information may be used to make the payments,

including, but not limited to, credit cards, charge cards, debit cards, smart cards, bank cards, demand deposit accounts such as checking accounts, virtual payment accounts, virtual cash account numbers such as those provided for commercial transactions over the Internet, wire transfer networks, financial electronic data interchange (FEDI), E-check, Automated Clearing House (ACH), payment products from third party, non-bank financial institutions such as CyberCash and TransPoint (MSFDC), stored value tools such as VisaCash and Mondex, and the like.

The system matches the customer's UPI or the customer identification data contained in a merchant, biller or payment processor's database with the financial account information contained in the one or more financial account databases and selects which one or more financial accounts to present when the customer is a holder of more than one financial account.

The financial account or accounts selected are provided to the merchant or biller for inclusion on a commercial communication, such as a payment stub, renewal form, invoice, or other marketing material soliciting payment or subscription. Optionally, the merchant/biller need not know the particular financial account or number being used. For example, a commercial communication may indicate the issuer of the financial account, such as a credit card, and a particular financial account, such as a particular credit card account, for the customer to charge the purchase to, but include the account number only in encrypted form, thus offering security and privacy to the consumer. Many forms of securing information are known and may be used, including but not limited to the use of encryption techniques and record locator techniques.

For example, in a transaction where the financial account utilized is a credit card account, the customer can indicate his approval to use the credit card number provided in encrypted form and thus does not have to provide the information himself when paying by credit card. The merchant/biller collects the invoices or other offers with the customer's indication or authorization of payment from the credit card account and, optionally, submits it to a service bureau which decrypts the credit card account number and processes billing to the selected credit card account. This helps preserve the customer's privacy in his or her credit card and related information.

As shown in Fig. 2, the system of the present invention serves as an

intermediary between a large number of issuers and a large number of merchants. As shown in Fig. 2, issuers provide their account information lists to the central account management and consolidation system of the present invention, which in turn receives customer identification data from merchants, and matches and selects financial account information to provide to merchants, as described above.

In some embodiments, the system includes a memory device which stores consolidated multiple financial account information, such as a master financial account list, which includes, for example, credit card account information from multiple credit card issuers. A computer system or other processing unit matches customer identification data from the stored consolidated financial account information to a UPI or to a database of a merchant/biller's customer identification data in order to associate a financial account number with a selected member of the customer database. The computer system or processing unit selects one or more specific associated financial account numbers when more than one financial account number matches the selected member of the merchant/biller's customer database. If not previously encrypted, the associated financial account number is encrypted and provided to the merchant/biller for inclusion on the customer's commercial communication, such as a bill, payment stub, renewal form or invoice, which is then sent to the customer. After selection and authorization by the customer, the system may also decrypt the encrypted financial account number for processing payment to the merchant/biller from the selected financial account of the customer.

Alternatively, in lieu of including a master consolidated database of financial account information, the system may be comprised of a plurality of databases of financial account information either internal or remote, and a mechanism for searching the various databases to locate a customer's financial account information. The various financial account information databases may include databases of individual issuers and/or partially consolidated databases containing information from a number of financial account issuers.

A method in accordance with one embodiment of the invention includes the steps of consolidating multiple financial account information lists from multiple financial account issuers into a master financial account list, receiving a UPI or a merchant/biller's customer database, and matching information from the master financial account list to the customer's UPI or to the master/biller's database to associate at least one financial account number for

each customer. In accordance with desired selection rules, one or more of the matching financial account number(s) is selected, if more than one financial account number is found for a particular customer. The selected financial account number is encrypted, or may be provided already encrypted in the financial account databases. The encrypted financial account number or numbers are provided to the merchant/biller for inclusion on the merchant/biller's commercial communication to the customer, thus providing the customer with a means for authorizing payment for purchase to the associated financial account number, such as a particular credit card. Payment for the purchase is processed and made to the merchant/biller from the financial account of the authorizing member. Of course, a financial account number can be any unique encrypted identifier, even those including letters as well as numbers.

Alternatively, instead of consolidating multiple financial account information from a number of financial account issuers into a single master financial account database or list, the method may include consolidating some subset of financial account lists and searching a plurality of such lists as well as lists from individual financial account issuers in order to associate at least one financial account number for each customer in the merchant/biller's customer database, or searching a plurality of individual financial account lists made available by different issuers.

In another embodiment, the present invention is directed to a system and method for providing automated payments over a computer network, for example, over the Internet. The system includes an automated payment server which is connected to various financial institutions and which receives and compiles data from those institutions to create files of account information for various customers. When a customer desires to purchase goods from a merchant's web site, or to pay bills, the customer is routed to the payment server, and is presented with the account information as compiled by the payment server. The customer selects one or more of the financial accounts, and the payment server transmits the appropriate financial information to the merchant's payment processor to complete the transaction. In this manner, credit card numbers are not transmitted over the Internet or stored on a merchant's site, but are only transmitted between the payment server and the payment processor, preferably over a secure line.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the invention, reference is made to the following description taken in connection with the accompanying drawings, in which:

Fig. 1 is a block diagram illustrating the problems encountered in matching a large number of financial account issuers to a large number of merchants/billers in an automated payment system;

Fig. 2 is a block diagram illustrating the use of the present invention in efficiently matching a large number of financial account issuers to a large number of merchants/billers in an automated payment system;

Fig. 3 is a block diagram of a preferred embodiment of an apparatus for carrying out the automated credit card payment method and system of the present invention;

Fig. 4 is a flow chart illustrating the use of the apparatus of Fig. 3;

Fig. 5 is a block diagram of an alternative embodiment of the present invention;

Fig. 6 is a block diagram of an automated payment system used for billers in accordance with one preferred embodiment of the invention;

Fig. 7 is a flow chart illustrating the use of the system of Fig. 6;

Fig. 8 is a block diagram of an alternative embodiment of the present invention;

Fig. 9 is a flow chart illustrating the use of the system of Fig. 8;

Figs. 10 and 11 are representations of an interface presented to a customer upon accessing a payment server according to one aspect of the invention; and

Fig. 12 is a block diagram of an embodiment of an apparatus for carrying out the automated credit card payment method and system of the present invention using a bricks-and-mortar terminal and a biometric identifier and/or PIN.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Preferred embodiments of the invention are now described with reference to the drawings. Although many of the drawings and descriptions illustrate the use of the invention with credit card accounts for the sake of simplicity, the invention is in no way meant to be limited to credit card accounts.

Referring to Fig. 3, an automatic payment system 50 according to one embodiment of the present invention is shown. The system 50 may utilize any combination of many types of financial accounts and is described with reference to credit card accounts for simplicity. The system 50 may be operated by a company, such as a service bureau, and includes a database consolidation and sorting subsystem 55, a master credit card database 57, an identifier matching and selecting subsystem 59, and an optional credit card account number encryption subsystem 53.

The automatic payment system 50 is used in conjunction with *n* number of credit card issuers 60_0 to 60_n. Each of the *n* credit card issuers 60 maintains on a computer system its own credit card information list 66_0 to 66_n in accordance with one of a number of conventional format types known to those of skill in the art. These credit card information lists 66 typically contain account holder identification data, such as the name and address of each account holder, as well as the associated credit card number, name of financial institution, account information and demographic information pertaining to each card holder. One skilled in the art will recognize that although the preferred embodiments are described with reference to the use of credit cards, other financial account information or devices, including but not limited to smart cards, bank cards, checking accounts, and virtual payment accounts used for Internet and other on-line commercial transactions, may be used instead of or in any combination with credit card accounts.

The automated payment system 50 receives credit card information lists 66 over

a transmission medium 68 from the *n* credit card issuers 60. This transfer of information over medium 68 may be achieved by many communications methods, including but not limited to modem connections, high speed data lines, the Internet, or the physical transfer of storage media, such as tapes or disks. This transfer is authorized by contractual relationships and may include financial incentives. In order to increase the likelihood of locating customer credit card information, it is preferable to include the credit card account information from as many credit card issuers as possible. The database consolidation and sorting subsystem 55, which may be in the form of a programmed computer system, sorts and consolidates the credit card information 66_o to 66_n provided by the credit card issuers 60_o to 60_n, and the sorted and consolidated data is then stored in the master credit card information database 57. This database may reside on a mass storage unit of the computer system. Of course, the processing elements and information storage elements may reside on multiple computing devices to provide for contingencies such as fault tolerance and load balancing.

The automated payment system 50 is used to provide credit card account information to one or more of *m* number of merchants/billers 70_o to 70_m. Each of the *m* merchants/billers may maintain on a computer its own list 76 of customer identification data. These lists 76_o to 76_m include customer identification data such as names and addresses of customers or additional information, such as social security numbers and demographic information. The automatic payment system 50 receives the customer identification data from a given merchant/biller 70_x, and the matching and selecting subsystem 59 compares the customer identification data supplied by merchants/billers 70_x with the records in the master credit card information database 57 to locate matching credit card holder identification data. The matching and selecting subsystem 59 may be in the form of a preprogrammed computer system which is either the same as the one used for the database consolidation and sorting subsystem 55, or separate therefrom. The process of matching customers from a merchant/biller database to credit card account holders in the matching and selecting subsystem 59 may be performed using conventional matching algorithms as known to those of skill in the art.

If more than one credit card holder identifier matches a given customer (i.e., the customer has more than one credit card), one or more of the matching credit card identifiers is selected or featured by the matching and selecting subsystem 59. This selection

proceeds in accordance with certain selection and presentation rules. As an illustrative example, a simple selection rule is used wherein the selected credit card is the one issued by the issuer having the most credit cards in the database, i.e., the most "popular" or predominant credit card. Alternatively, in one embodiment, the selection is made on a pro rata basis or other algorithm based on the total number of credit card accounts for each issuer in relation to the number of credit card accounts for the other issuers and the total number of credit card accounts in the master credit card database 57. Thus, for example, a credit card issuer which accounts, for example, for 25% of the total number of credit card accounts in the consolidated database, will have its associated credit card account selected 25% of the time for customers who have multiple credit card number accounts including that issuer. Another method of selecting one associated credit card account number from more than one matching associated credit card account is to compare the selected associated credit card account numbers with credit card usage information to determine the customer's primary credit card, based on amount of use, and selecting the customer's most often used credit card. Yet another method of selecting an account may take into consideration the fees associated with financial transactions and select the financial institution that charges the lowest fees. Alternatively, the selection process may take into account historical data and select the financial institution that yields the best results or success for a particular merchant/biller. Finally, the selection may be made as a result of fees paid by the credit card issuer to receive priority in the selection process.

In alternative embodiments, more than one credit card, or all of the credit cards, may be selected for inclusion, and the customer is given the option of selecting which one of the cards is to be used for making payment. In this embodiment, all matching credit card account numbers may be selected and presented to the customer. The selected credit card accounts may be presented to the customer in a list with a check box, such as in the following form:

Choose the card(s) with which you wish to pay:

_____ CITIBANK VISA

_____ DISCOVER

_____ AMERICAN EXPRESS

In a more preferred embodiment of the present invention, the selected credit card accounts can also be ordered and presented to the user, based on similar criteria as that used by the system to determine the selection of credit cards, *e.g.*, the most popular card in the database, the customer's most often used credit card, the card that charges the lowest fees, or the card whose issuer has paid the highest fee, can be presented above or ahead of other credit cards.

The selected credit card account number or numbers which are to be included on a commercial communication are encrypted by a credit card account number encryption subsystem 53. The particular method of encryption may include a finder number, record locator, some form of high level encryption, or any other encryption technique. While encryption is an element of the preferred embodiment, the method of encryption may be any method which achieves adequate security and the specific method of encryption does not constitute a material element of the system and method set forth herein. Moreover, credit card information may be encrypted and provided in encrypted form from the credit card issuers 60 before being stored in the master credit card information database.

Fig. 4 illustrates the use of encrypted account information of the present invention, and specifically, encrypted credit card information for the sake of simplicity. In one embodiment, for each customer in a merchant/biller's customer identification data database 76, the encrypted credit card account number associated with the customer is provided by merchant/biller 70_x to the customer (step 80) as part of the communication to the customer from merchant/biller 70_x. Alternatively, in a bricks-and-mortar embodiment of the present invention where the bricks-and-mortar merchant does not have a "customer information database," the customer communicates directly to the central database 57 via a payment process interface, e.g., a terminal or computer. At step 90, the customer decides whether to authorize payment by credit card. This authorization step may also include selecting which credit card(s) to use if the customer is presented with more than one. If the customer authorizes such payment and returns the commercial communication to the merchant/biller or other payment processing entity, the encrypted credit card account number is decrypted at step 100. The encrypted number may be sent by the system 50 to the credit card issuer, a payment processor or merchant for decryption and/or payment processing. After decryption the credit card account number is used to process payment to merchant/biller (step 110) and payment is made to the particular merchant/biller, along with any required payments for use of the system

in handling the transaction. If the customer 90 does not authorize payment, steps 100 and 110 are simply not performed.

It should be understood that elements of the system and method of the present invention described herein, such as in Figures 3 and 4, may be modified in keeping with the intended scope of the invention. For example, the consolidated credit card account database has been described as containing account information from multiple credit card account issuers. However, the merchant/biller's customer identification data may alternatively be matched serially against multiple databases, including individual credit card issuers' credit card account databases and/or one or more consolidated database. Each individual or consolidated database represents some number of credit card issuers which is a subset of all the issuers.

Fig. 5 shows an alternative embodiment of an automated payment system 50' according to the present invention. The system 50' of this alternative embodiment includes a serial matching subsystem 59' and a selection/presentation subsystem 59''. The serial matching subsystem compares customer identification data, received over transmission medium 69 from a merchant or one or more customer databases 76 of a given merchant/biller 70, to a number of credit card databases 66 of a number of issuers 60. The serial matching subsystem may also compare the customer identification data with a consolidated database 58 containing information consolidated from a limited number of issuers 60, in this case, issuers 3 and 4. The serial matching subsystem locates matches of the merchant/biller's customer identification data with account holder identification data contained in the individual and partially consolidated databases 66 and 58, as discussed above. Once a set of matching credit card account numbers is located, the selection subsystem 59'' selects one or more of the account numbers, in accordance with the selection rules discussed above.

Referring now to Fig. 6, therein is shown a block diagram of an embodiment of the automated credit card payment system of the present invention as applied to merchant/billers. In this arrangement, multiple merchant/billers 150 use a fulfillment house 152 and a service bureau 154 employing the system of the present invention to deal with multiple credit card account databases 156, one or more of which may be partially consolidated databases as explained above. More than one fulfillment house 152 may be utilized to serve the various merchant/billers and/or groups of merchant/billers, or one fulfillment house 152 may be used for each biller 150. Merchant/billers 150 provide the fulfillment house 152 with

each of their customer files 158 and outside lists 160 (e.g., lists of prospective customers). The service bureau 154 uses the system of the present invention to match the names on the merchant/billers' customer files 158 with associated financial account information. This information, including credit card information, is consolidated by the service bureau 154 from multiple credit card issuers 156 and is stored in a master credit card file. Alternatively, this credit card information can be accessed serially from databases of the multiple credit card issuers.

After matching the merchant/billers' customer files 158 and outside lists 160 with associated financial account information, the service bureau encrypts the matching credit card account numbers (block 162) and provides them to the fulfillment house 152. The use of the located credit card information is shown in the flow chart of Fig. 7, where fulfillment house 152 uses the encrypted credit card account information in marketing, billing and/or renewal efforts (step 164), such as by placing encrypted credit card account numbers on commercial communications. At step 165, customers authorize the use of their credit card, and optionally select which credit card to use if more than one is presented to the customer.

When customers place orders using the encrypted credit card account information on the commercial communication, the orders are collected and the encrypted number entered and consolidated into a consolidated order file (step 166). The encrypted account numbers in the consolidated order file are then decrypted (step 170) and payments are processed (step 172).

Referring now to Figs. 8 and 9, there is shown another embodiment of the present invention. In this embodiment, the system 200 is designed for use over a computer network, for example, over the Internet, a LAN, WAN, or the like. The system 200 includes an automated payment server 202 that includes a processing unit 204 and a customer database 206 maintained by the processing unit, and is similar in many respects to the automated payment system 50 described above. The database combines account information from various financial institutions, as well as bill information from various billers.

The automated payment server 202 connects to a plurality of customers at respective terminals 208, and interacts with those customers via a suitable customer interface 210 (only one terminal is shown schematically in FIG. 8). The customer interface can be a basic application used to select payment options, a method of viewing bills from various

billers, and/or a full-service interface that combines those functions and allows the customer to re-configure the account. It will be apparent to those skilled in the art that various forms of interface may be employed.

The automated payment server 202 further connects to one or more merchant sites 212 over one or more communication lines 214. Preferably, at least one of the lines 214 is a secure line for transmission of payment information, as is described in greater detail below.

The automated payment server 202 is connected to various financial institutions 220 and to various billers 222. The automated payment system 202 receives account information, including updated account information, over a transmission medium from the financial institutions, and receives billing information from the various billers, as described above in connection with the automated payment server 50. For example, various utilities may transmit bills electronically to their customers via the payment server 202. An automated account information merge/purge subsystem 224 and an automated bill information merge/purge subsystem 226, which may be in the form of programmed computer systems, sort and consolidate the account and bill information provided by the financial institutions and billers, and the sorted and consolidated data is then stored in the customer database 206 for subsequent access, as is described in greater detail below.

The customer terminals 208 can take many different forms, and can access the automated payment server 202 in many different ways. For example, the customer may transmit purchase requests via a brick-and-mortar terminal, E-mail, or over the Internet by clicking on a banner on a web site, through interactive television, WebTV®, over the telephone, by direct mail, or in any other suitable manner. In one embodiment, the merchant site 212 may post a banner indicating that payment for a transaction may be conducted through the automated payment server 202. The customer can then click on the banner and be directed to the automated payment server, as is described in greater detail below.

The customer interface 210 is preferably a suitable interface that allows the automated payment server 202 to simultaneously communicate with multiple customers over the Internet or other computer network.

Referring now to Fig. 9, the operation of the automated payment server 202 is described in more detail. Operation begins at step 300, with a customer beginning the

transaction by communicating with a merchant 212 and either placing an order or requesting to pay a bill for goods or services. In one embodiment, the merchant site presents the customer with a banner having an embedded URL of the automated payment server 202, or alternatively the merchant site can automatically direct the customer to the automated payment server when the customer places an order. At step 302, the customer is linked to the automated payment server 202, and at step 303 the server determines whether the customer is registered with the server. If the customer is not registered, operation proceeds to step 304, and the customer registers with the payment server. Registration can be conducted over the computer network, over the telephone, through the mail, or in any other suitable manner, and involves receiving identifying information from the customer to verify the identity of the customer for all subsequent transactions. For example, the customer may provide their name, address, etc., along with their mother's maiden name, a social security number, or the like. The customer may also provide biometric information, *e.g.*, fingerprint sample, handwriting sample, retina scan, or voice recording/pattern. Once the customer's identity has been verified, a password is selected for the customer (either chosen by the customer or randomly assigned by the payment server), as is well known in the art.

If the customer is already registered with the payment server 202, the customer inputs his or her user name and password at step 303, and after authentication or verification, the customer is allowed to continue with the payment transaction.

The merchant 212 transmits order and/or payment data to the payment server 202, either automatically or after being prompted by the payment server, at step 305. The data preferably identifies the customer, for example by including order ID data and/or a customer UPI, which is also transmitted to the payment server when the customer accesses the payment server. Alternatively, the merchant site may transmit the customer's name or any other identifying data to allow the payment server to associate the customer with the particular order or payment request.

The customer's UPI or other identifying information is associated with the customer's financial account(s). The UPI can be in the form of a name, password, PIN, ID number, or other unique identifier. Alternatively, the UPI can take the form of a fingerprint, retina scan, voice pattern, handwriting sample, or other unique "biometric" identifier. These biometric identifiers, in some cases, can be used in conjunction with a password or PIN. The

recording, capturing, and storing of unique biometric identifiers such as retina scans, iris scans, voice patterns, digital handwriting samples or digitally scanned fingerprints are described in U.S. Patent Nos. 6,047,281; 6,038,334 and 5,991,408, the disclosures of which are incorporated herein by reference. In one possible embodiment of the invention, the customer's UPI is recorded and/or authenticated using prior art devices, such as digital scanners, cameras or recorders, attached to the consumer's computer or located at a bricks-and-mortar or other merchant terminal as exemplified in Fig. 12.

Once the payment server has associated the customer with the order or payment request, operation proceeds to step 306, and the payment server accesses the customer database to retrieve the customer's account information, which as described above is in the form of various credit cards, debit cards, smart cards, bank cards, demand deposit accounts such as checking accounts, virtual payment accounts, wire transfer networks, financial electronic data interchange (FEDI), Echeck, Automated Clearing House (ACH), payment products from third party, non-bank financial institutions such as CyberCash and TransPoint (MSFDC), stored value tools such as VisaCash and Mondex, and the like. Then, at step 308, the payment server 202 presents the customer account information to the customer (Fig. 10). The account information identifies the various financial to the customer, without transmitting entire account numbers to the customer. For example, some identifying information is transmitted, such as the name of the credit card, the last several digits of a credit card, or the like (e.g., "AmEx 206543"). The account information may include, in addition to identifying the various credit cards and the like, available balance information, date of the last update to that account, date of last payment, credit limit, transaction detail, and the like.

At step 310, the customer selects one or more payment options, and that selection (or selections) is transmitted to the payment server via the interface 210. Thus, the actual account numbers are not transmitted between the payment server and the customer.

The customer may choose to split a payment between two or more financial accounts, for example, two or more credit cards. In addition, the payment server can present the accounts to the customer in some specific order, as defined by the customer, the financial institutions, particular merchants, account usage, available balances, interest rates, and the like.

In one embodiment, the payment server 202 presents the customer only with

appropriate payment options. For example, if the purchase amount is $100, and the customer's checking account has a balance less than $100, the payment server preferably does not provide that as an option to the customer. Alternatively, the checking account may be presented to the customer, but in a different color or font to indicate to the customer that such account is not suitable for the particular transaction, but can be used in connection with another payment option to complete the transaction.

At step 312, the payment server 202 transmits a request for authorization to the payment processor of the merchant site 212, which includes the payment option selected by the customer. At step 314, the customer interface determines whether the payment option is acceptable. For example, the customer may have selected a credit card that is not accepted by the particular merchant. If so, operation proceeds to step 316, and the customer is informed that the authorization failed. Operation then flows back to step 308, to allow the customer to select another payment option.

If the payment option is acceptable at step 314, operation proceeds to step 318, and the customer is notified that the transaction has been approved. Then, at step 320, the payment server 202 transmits the approved order or Approval to the merchant site or to the merchant's payment processor 212, preferably over a secure line, and the merchant fills the order by interacting with the customer 208. For example, the merchant site may request shipping information if they do not already have it or other required information to complete the transaction. Then, at step 322, the payment processor accesses the appropriate financial institution and transmits the payment information, so that the customer's account is debited and the merchant's account is credited.

It will be apparent to those skilled in the art that the above steps may also be carried out over a telephone network that allows for interactivity, such as those systems offering voice recognition and/or dual tone multi-frequency (DTMF) tones. As is well known in the art, the customer may enter a user ID and password by pressing the appropriate keys on the telephone, with the payment server including the appropriate, well-known hardware to interpret the DTMF tones to determine the corresponding numbers entered by the customer. Thus, a customer may dial a telephone number, listen to a list of available goods, services and/or bills, and select one or more of the goods, services and/or bills by pressing appropriate keys on the telephone. The payment server, through a well-known interactive system such as

interactive voice response (IVR) or the like, then prompts the customer to enter identification data, such as a user name and PIN number, or the like. Once the identity of the customer is verified, the payment server may then present the customer with a list of credit cards that may be used to complete a transaction. For example, the IVR software may read "Press 1 to select your Visa account, press 2 to select American Express," or the like. The customer may simply press the corresponding key on the telephone to signal the payment server of the customer's choice. The remainder of the process is the same as the computer network version described above. Thus, in this manner the payment server 202 is available to customers over a telephone network.

Alternatively, the present invention may be implemented through the mail, by the customer returning an order form sent through regular mail and/or electronic mail. In this manner, the payment server sends a preprinted order form to potential customers, listing various goods, services and/or bills available, and also listing that particular customer's financial accounts as compiled by the customer database 206. The customer selects one or more of the goods, services and/or bills, selects a financial account for payment from the customer-specific list printed on the form, and returns the order form to the payment server 202. An operator at the payment server then enters the data, or in the case of electronic transfer such as email, the data is uploaded. The payment server forwards the data to the appropriate merchant. If the payment option selected by the customer is not appropriate (e.g., the merchant does not accept that type of payment or the available balance is too low), the customer is notified, either through the mail (electronic or regular) or via telephone, and may select another payment option. Once a suitable payment option is selected, the remainder of the transaction is completed along the lines of the computer network version described above.

In an alternative embodiment, the customer who receives the order form or bill may call a telephone number provided on the form and complete the transaction over the telephone, in the same manner as described above.

In another embodiment, the customer at terminal 208 may access the payment server 202 directly without initially accessing a merchant's site. The customer then may be presented with outstanding bills, as compiled by the automated bill information merge/purge subsystem 226 (Fig. 11). The customer may select one or more of the bills to be paid, and is then presented with the account information, similar to the process described above with

respect to Fig. 9.

It will be apparent that the system and method of the present invention allow payment transactions to be performed over a computer network without requiring any credit card numbers or the like to be transmitted directly between the customer 208 and merchant 5212, or between the customer 208 and the payment server 202. Thus, no account information passes over a public network such as the Internet. The account information is transmitted over secure lines between the financial institutions and the payment server 202, and between the payment server and the merchant's payment processor or the merchant's site. In addition, multiple merchants do not need to maintain a database of account numbers, as such information 10is maintained at the payment server 202. Maintaining the database at one location rather than at each individual merchant further reduces the likelihood of fraud.

Referring to Fig. 12, an automatic payment system 50 is shown according to an embodiment that implements use of biometric identifiers and/or PINs. A biometric identifier and/or PIN is collected at a bricks-and-mortal terminal. A bricks-and-mortar terminal may 15include a computer, digital camera, scanner, recorder or other device capable of capturing such information. The automatic payment system 50 receives the biometric identifier and/or PIN from the bricks-and-mortar terminals 84_x, and the matching and selecting subsystem 59 compares the biometric identifier and/or PIN 88_x with the records in the master credit card information database 57 to locate matching credit card holder identification data. The matching 20and selecting subsystem 59 may be in the form of a preprogrammed computer system which is either the same as the one used for the database consolidation and sorting subsystem 55, or separate therefrom. The process of matching customers from a merchant/biller database to credit card account holders in the matching and selecting subsystem 59 may be performed using conventional matching algorithms as known to those of skill in the art. If a match is 25found in the master credit card database 57, then the PIN is validated.

As can be understood from the above description of the present invention, the present invention provides a number of benefits to customers (such as credit card users), financial institutions, merchants and billers. Benefits for the financial institutions include reduced fraud, more credit card usage, higher retention rates, and increased fee income. 30Benefits for the customer include convenience, privacy, and efficiency. Benefits to the merchant/billers are reduced fraud and theft, higher retention rates, less bad debt, savings on

mailing expense, and better customer relationships.

The system and method of the present invention may also be used in conjunction with a targeted marketing or coupon plan in which purchasing behavior can be identified and recorded by the payment server. In one possible embodiment, consumers with financial accounts (including credit card accounts) on the payment server can acquiesce in having their purchasing behavior tracked and provided to a wide variety of businesses and industries. These business and industries can then preferentially target various consumers for discounts, coupons, or other marketing deals based on their past purchases.

Another benefit provided by the present invention is the security and privacy for consumers. Therefore, in accordance with the preferred embodiment of the invention herein, a centralized organization or company is the only party, aside from the financial institutions with relationships with the consumers, as well as the consumers themselves, that has access to the specific financial account information. It should be understood that the functions performed by the central organization may actually be divided between separate entities. For example, one entity may perform processing, while another entity performs encryption/decryption. As described above, only encrypted account information is provided to the merchants/billers; however, it is within the scope of the present invention to provide a system in which accounts are provided to merchants/billers directly, and the merchant/biller or other company encrypts such account information for use in its billing materials. In such a case, once the merchant/biller receives the customer's approval for charging a particular account, it can proceed to decrypt and process the payment from the financial institution directly.

Many other user functions known in the art can be implemented such as the ability to allow a user to modify his user registration information.

While several forms of the invention have been described, it will be apparent to those skilled in the art that various modifications and improvements may be made without departing from the spirit and scope of the invention.

WHAT IS CLAIMED IS:

1. A method for facilitating payment from a customer's financial account to a merchant/biller or a payment processor associated with a merchant/biller, comprising the steps of:

compiling in a memory financial account information for at least one customer from a plurality of financial institutions;

receiving and storing transaction information relating to a particular customer;

retrieving from the memory the financial account information for the customer;

presenting the financial account information to the customer;

receiving and storing a selection by the customer of at least one of the financial accounts; and

providing the selected financial account(s) information either to the merchant/biller or to a payment processor associated with the merchant/biller.

2. The method of claim 1, wherein said financial account corresponds to at least one of a credit card, charge card, debit card, smart card, bank card, demand deposit account, checking account, virtual payment account, virtual cash account, wire transfer networks, financial electronic data interchange (FEDI), Echeck, Automated Clearing House (ACH), and stored value tools.

3. The method of claim 1, further comprising the step of consolidating at least two of said plurality of financial account information databases into a single consolidated financial account information database and wherein said retrieving step includes the step of searching said consolidated database.

4. The method of claim 1, further comprising the steps of selecting a subset of one or more financial accounts from among a plurality of customer financial accounts, and presenting the subset to the customer.

5. The method of claim 4, wherein the subset of accounts includes financial accounts acceptable to the merchant/biller.

6. The method of claim 1, further comprising the step of dividing payment for a single transaction among more than one financial account if more than one financial account is selected.

7. The method of claim 1, further comprising the step of selecting the order in which one or more financial accounts are presented to the customer before presenting the financial account information to the customer.

8. The method of claim 1, further comprising the steps of encrypting said selected customer financial account information prior to providing it to said merchant/biller, or payment processor, and encrypting or truncating the financial account information before it is presented to the customer.

9. The method of claim 1, further comprising the step of updating said financial account information from at least one of said plurality of financial institutions.

10. The method of claim 1, further comprising the steps of determining whether a customer is a registered customer; and

registering a customer if the customer is not yet registered.

11. The method of claim 10, wherein the step of registering a customer further includes capturing a PIN and a biometric measurement of the customer.

12. The method of claim 11, wherein the biometric measurement includes voice patterns, fingerprints, retina scans, or handwriting samples.

13. The method of claim 11, further comprising the step of comparing the PIN, biometric measurement, or both, against a respective stored database of PINs or biometric measurements.

14. The method of claim 1, further comprising the step of comparing a transaction value from the transaction information to an available balance value from the financial account information.

15. The method of claim 14, further comprising the step of presenting to customers only those financial accounts with an individual or combined available fund balance equal to or greater than the transaction value.

16. A method for facilitating payment from a customer's financial account for a bill selected from a plurality of bills presented to the customer, the method comprising the following steps:

compiling in a memory financial account information for at least one customer from a plurality of financial institutions;

presenting the customer with bill information for each of a plurality of bills;

receiving selection information from the customer specifying a particular selected bill which is to be paid;

retrieving from the memory the financial account information for the customer;

presenting the financial account information to the customer; and

receiving selection information from the customer specifying a particular account to be used to pay the selected bill.

17. The method of claim 16, wherein said financial account corresponds to at least one of a credit card, charge card, debit card, smart card, bank card, demand deposit account, checking account, virtual payment account, virtual cash account, wire transfer networks, financial electronic data interchange (FEDI), Echeck, Automated Clearing House (ACH), and stored value tools.

18. The method of claim 16, further comprising the step of consolidating at least two of said plurality of financial account information databases into a single consolidated financial account information database and wherein said retrieving step includes the step of searching said consolidated database.

19. The method of claim 16, further comprising the steps of selecting a subset of one or more financial accounts from among a plurality of customer financial accounts, and presenting the subset to the customer.

20. The method of claim 19, wherein the subset of accounts includes financial accounts acceptable to the merchant/biller.

21. The method of claim 16, further comprising the step of dividing payment for a single transaction among more than one financial account if more than one financial account is selected.

22. The method of claim 16, further comprising the step of selecting the order in which one or more financial accounts are presented to the customer before presenting the financial account information to the customer.

23. The method of claim 16, further comprising the steps of encrypting said selected customer financial account information prior to providing it to said merchant/biller, or payment processor, and encrypting or truncating the financial account information before it is presented to the customer.

24. The method of claim 16, further comprising the step of updating said financial account information from at least one of said plurality of financial institutions.

25. The method of claim 16, further comprising the steps of determining whether a customer is a registered customer; and

registering a customer if the customer is not yet registered.

26. The method of claim 25, wherein the step of registering a customer further includes capturing a PIN, an IP address or a biometric measurement of the customer.

27. The method of claim 26, wherein the biometric measurement includes voice patterns, fingerprints, retina scans, or handwriting samples.

28. The method of claim 26, further comprising the step of comparing at least one of the PIN, IP address, biometric measurement, against a respective stored database of PINs, IP addresses or biometric measurements.

29. The method of claim 16, further comprising the step of comparing a transaction value from the transaction information to an available balance value from the financial account information.

30. The method of claim 29, further comprising the step of presenting to customers only those financial accounts with an individual or combined available fund balance equal to or greater than the transaction value.

31. A method for facilitating payment from a customer's financial account to a merchant/biller or a payment processor associated with a merchant biller over a computer network, comprising the steps of:

compiling in a memory at a payment server financial account information for at least one customer, said information being received from a plurality of financial institutions;

receiving over the computer network transaction information at the payment server relating to a particular customer and storing the transaction information;

retrieving from the memory the financial account information for the customer;

transmitting the financial account information over the computer network to the customer;

receiving over the computer network a selection by the customer of one or more of the financial accounts and storing the selection; and

transmitting the selected financial account information over the computer network to said merchant/biller or a payment processor associated with the merchant/biller.

32. The method of claim 31, wherein said financial account corresponds to at least one of a credit card, charge card, debit card, smart card, bank card, demand deposit account, checking account, virtual payment account, virtual cash account, wire transfer networks, financial electronic data interchange (FEDI), Echeck, Automated Clearing House (ACH), and stored value tools.

33. The method of claim 31, further comprising the step of consolidating at least two of said plurality of financial account information databases into a single consolidated financial account information database and wherein said retrieving step includes the step of searching said consolidated database.

34. The method of claim 31, further comprising the steps of selecting a subset of one or more financial accounts from among a plurality of customer financial accounts, and presenting the subset to the customer.

35. The method of claim 34, wherein the subset of accounts includes financial accounts acceptable to the merchant/biller.

36. The method of claim 31, further comprising the step of dividing payment for a single transaction among more than one financial account if more than one financial account is selected.

37. The method of claim 31, further comprising the step of selecting the order in which one or more financial accounts are presented to the customer before presenting the financial account information to the customer.

38. The method of claim 31, further comprising the steps of encrypting said selected customer financial account information prior to providing it to said merchant/biller, or payment processor, and encrypting or truncating the financial account information before it is presented to the customer.

39. The method of claim 31, further comprising the step of updating said financial account information from at least one of said plurality of financial institutions.

40. The method of claim 31, further comprising the steps of determining whether a customer is a registered customer; and

registering a customer if the customer is not yet registered.

41. The method of claim 40, wherein the step of registering a customer further includes capturing a PIN, IP address or a biometric measurement of the customer.

42. The method of claim 41, wherein the biometric measurement includes voice patterns, fingerprints, retina scans, or handwriting samples.

43. The method of claim 41, further comprising the step of comparing at least one of the PIN, IP address, and biometric measurement, against a respective stored database of PINs, IP addresses or biometric measurements.

44. The method of claim 31, further comprising the step of comparing a transaction value from the transaction information to an available balance value from the financial account information.

45. The method of claim 44, further comprising the step of presenting to customers only those financial accounts with an individual or combined available fund balance equal to or greater than the transaction value.

46. A method for facilitating payment from a customer's financial account to a merchant/biller or a payment processor associated with a merchant biller, comprising the steps of:

compiling in a memory at a payment server financial account information for at least one customer, said information being received from a plurality of financial institutions;

receiving transaction information relating to a particular customer;

transmitting said transaction information to the payment server and storing the transaction information;

retrieving from the memory the financial account information for the customer;

displaying the financial account information on an interface;

receiving a selection by the customer of at least one of the financial accounts and storing the selection; and

transmitting the selected financial account(s) information either to the merchant/biller or to a payment processor associated with the merchant/biller.

47. The method of claim 46, wherein said financial account corresponds to at least one of a credit card, charge card, debit card, smart card, bank card, demand deposit account, checking account, virtual payment account, virtual cash account, wire transfer networks, financial electronic data interchange (FEDI), Echeck, Automated Clearing House (ACH), and stored value tools.

48. The method of claim 46, further comprising the step of consolidating at least two of said plurality of financial account information databases into a single consolidated financial account information database and wherein said retrieving step includes the step of searching said consolidated database.

49. The method of claim 46, further comprising the steps of selecting a subset of one or more financial accounts from among a plurality of customer financial accounts, and presenting the subset to the customer.

50. The method of claim 49, wherein the subset of accounts includes financial accounts acceptable to the merchant/biller.

51. The method of claim 46, further comprising the step of dividing payment for a single transaction among more than one financial account if more than one financial account is selected.

52. The method of claim 46, further comprising the step of selecting the order in which one or more financial accounts are presented to the customer before presenting the financial account information to the customer.

53. The method of claim 46, further comprising the steps of encrypting said selected customer financial account information prior to providing it to said merchant/biller, or payment processor, and encrypting or truncating the financial account information before it is presented to the customer.

54. The method of claim 46, further comprising the step of updating said financial account information from at least one of said plurality of financial institutions.

55. The method of claim 46, further comprising the steps of determining whether a customer is a registered customer; and

registering a customer if the customer is not yet registered.

56. The method of claim 55, wherein the step of registering a customer further includes capturing a PIN, IP address or a biometric measurement of the customer.

57. The method of claim 56, wherein the biometric measurement includes voice patterns, fingerprints, retina scans, or handwriting samples.

58. The method of claim 56, further comprising the step of comparing at least one of the PIN, IP address and biometric measurement, against a respective stored database of PINs, IP addresses or biometric measurements.

59. The method of claim 46, further comprising the step of comparing a transaction value from the transaction information to an available balance value from the financial account information.

60. The method of claim 59, further comprising the step of presenting to customers only those financial accounts with an individual or combined available fund balance equal to or greater than the transaction value.

61. The method of claim 46, wherein the interface includes a terminal, smart terminal, smart box, keypad, LCD display, cardswipe device or touchpad.

62. The method of claim 46, wherein only those financial accounts acceptable to the merchant/biller are displayed on the interface.

63. A method for facilitating direct bill payment by a customer, comprising the steps of:

receiving and storing billing information from a merchant/biller or merchant payment processor relating to a particular customer;

retrieving from a customer database financial account information for the customer compiled from a plurality of financial institutions;

presenting to the customer a bill payment interface with one or more of the customer's financial accounts;

receiving and storing a selection by the customer of at least one of the financial accounts for payment of the bill; and

providing the selected financial account(s) information either to the merchant/biller or to a payment processor associated with the merchant/biller.

64. The method of claim 63, wherein said financial account corresponds to at least one of a credit card, charge card, debit card, smart card, bank card, demand deposit account, checking account, virtual payment account, virtual cash account, wire transfer networks, financial electronic data interchange (FEDI), Echeck, Automated Clearing House (ACH), and stored value tools.

65. The method of claim 63, further comprising the step of consolidating at least two of said plurality of financial account information databases into a single consolidated financial account information database and wherein said retrieving step includes the step of searching said consolidated database.

66. The method of claim 63, further comprising the steps of selecting a subset of one or more financial accounts from among a plurality of customer financial accounts, and presenting the subset to the customer.

67. The method of claim 66, wherein the subset of accounts includes financial accounts acceptable to the merchant/biller.

68. The method of claim 63, further comprising the step of dividing payment for a single transaction among more than one financial account if more than one financial account is selected.

69. The method of claim 63, further comprising the step of selecting the order in which one or more financial accounts are presented to the customer before presenting the financial account information to the customer.

70. The method of claim 63, further comprising the steps of encrypting said selected customer financial account information prior to providing it to said merchant/biller, or payment processor, and encrypting or truncating the financial account information before it is presented to the customer.

71. The method of claim 63, further comprising the step of updating said financial account information from at least one of said plurality of financial institutions.

72. The method of claim 63, further comprising the steps of determining whether a customer is a registered customer; and

registering a customer if the customer is not yet registered.

73. The method of claim 72, wherein the step of registering a customer further includes capturing a PIN, IP address or a biometric measurement of the customer.

74. The method of claim 73, wherein the biometric measurement includes voice patterns, fingerprints, retina scans, or handwriting samples.

75. The method of claim 73, further comprising the step of comparing at least one of the PIN, IP address or biometric measurement, against a respective stored database of PINs, IP addresses or biometric measurements.

76. The method of claim 63, further comprising the step of comparing a transaction value from the transaction information to an available balance value from the financial account information.

77. The method of claim 76, further comprising the step of presenting to customers only those financial accounts with an individual or combined available fund balance equal to or greater than the transaction value.

78. An apparatus for facilitating payment from a customer's financial account to a merchant/biller or a payment processor associated with a merchant/biller, comprising:

a processor; and

a memory storing processing instructions for controlling the processor, the processor operative with the processing instructions to:

compile in a memory financial account information for at least one customer from a plurality of financial institutions;

receive and storing transaction information relating to a particular customer;

retrieve from the memory the financial account information for the customer;

present the financial account information to the customer;

receive and store a selection by the customer of at least one of the financial accounts; and

provide the selected financial account(s) information either to the merchant/biller or to a payment processor associated with the merchant/biller.

79. The system of claim 78, wherein said financial account corresponds to at least one of a credit card, charge card, debit card, smart card, bank card, demand deposit account, checking account, virtual payment account, virtual cash account, wire transfer networks, financial electronic data interchange (FEDI), Echeck, Automated Clearing House (ACH), and stored value tools.

80. The system of claim 78, wherein the processor is operative to consolidate at least two of said plurality of financial account information databases into a single consolidated financial account information database.

81. The system of claim 78, wherein the processor is operative to select a subset of one or more financial accounts from among a plurality of customer financial accounts, and to present the subset to the customer.

82. The system of claim 78, wherein the processor is operative to select a subset of accounts that includes financial accounts acceptable to the merchant/biller.

83. The system of claim 78, wherein the processor is operative to divide a payment for a single transaction among more than one financial account if more than one financial account is selected.

84. The system of claim 78, wherein the processor is operative to select the order in which one or more financial accounts are presented to the customer before presenting the financial account information to the customer.

85. The system of claim 78, wherein the processor is operative to encrypt said selected customer financial account information prior to providing it to said merchant/biller or to said payment processor, and to encrypt or truncate the financial account information before it is presented to the customer.

86. The system of claim 78, wherein the processor is operative to update said financial account information from at least one of said plurality of financial institutions.

87. The system of claim 78, wherein the processor is operative to determine whether a customer is a registered customer, and to register the customer if the customer is not yet registered.

88. The system of claim 87, wherein the processor is operative to capture a PIN, IP address or a biometric measurement of the customer as part of the registration.

89. The system of claim 88, wherein the biometric information includes voice patterns, fingerprints, retina scans, or handwriting samples.

90. The system of claim 88, wherein the processor is operative to compare at least one of the PIN, IP address and biometric measurement, against a respective stored database of PINs, IP addresses or biometric measurements.

91. The system of claim 78, wherein the processor is operative to compare a transaction value from the transaction information to an available balance value from the financial account information.

92. The system of claim 91, wherein the processor is operative to present to customers only those financial accounts with an individual or combined available fund balance equal to or greater than the transaction value.

93. An apparatus for facilitating payment from a customer's financial account for a bill selected from a plurality of bills presented to the customer, comprising:

a processor; and

a memory storing processing instructions for controlling the processor, the processor operative with the processing instructions to:

compile in a memory financial account information for at least one customer from a plurality of financial institutions;

present the customer with bill information for each of a plurality of bills;

receive selection information from the customer specifying a particular selected bill which is to be paid;

retrieve from the memory the financial account information for the customer;

present the financial account information to the customer; and

receive selection information from the customer specifying a particular account to be used to pay the selected bill.

94. An apparatus for facilitating payment from a customer's financial account to a merchant/biller or a payment processor associated with a merchant/biller over a computer network, comprising:

a processor; and

a memory storing processing instructions for controlling the processor, the processor operative with the processing instructions to:

compile in a memory at a payment server financial account information for at least one customer, said information being received from a plurality of financial institutions;

receive over the computer network transaction information at the payment server relating to a particular customer and storing the transaction information;

retrieve from the memory the financial account information for the customer;

transmit the financial account information over the computer network to the customer;

receive over the computer network a selection by the customer of one or more of the financial accounts and storing the selection; and

transmit the selected financial account information over the computer network to said merchant/biller or a payment processor associated with the merchant/biller.

95. An apparatus for facilitating payment from a customer's financial account to a merchant/biller or a payment processor associated with a merchant biller, comprising:

a processor; and

a memory storing processing instructions for controlling the processor, the processor operative with the processing instructions to:

compile in a memory at a payment server financial account information for at least one customer, said information being received from a plurality of financial institutions;

receive transaction information relating to a particular customer;

transmit said transaction information to the payment server and storing the transaction information;

retrieve from the memory the financial account information for the customer;

display the financial account information on an interface;

receive a selection by the customer of at least one of the financial accounts and storing the selection; and

transmit the selected financial account(s) information either to the merchant/biller or to a payment processor associated with the merchant/biller.

96. An apparatus for facilitating direct bill payment by a customer, comprising:

a processor; and

a memory storing processing instructions for controlling the processor, the processor operative with the processing instructions to:

receive and store billing information from a merchant/biller or merchant payment processor relating to a particular customer;

retrieve from a customer database financial account information for the customer compiled from a plurality of financial institutions;

present to the customer a bill payment interface with one or more of the customer's financial accounts;

receive and store a selection by the customer of at least one of the financial accounts for payment of the bill; and

provide the selected financial account(s) information either to the merchant/biller or to a payment processor associated with the merchant/biller. --.

FIG. 1

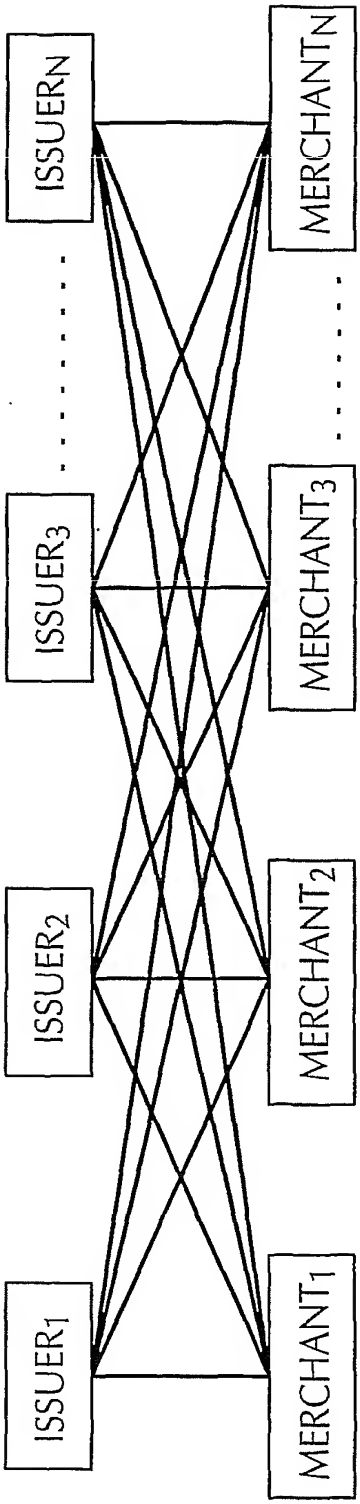

ISSUER1
ISSUER2
ISSUER3
ISSUERN
MERCHANT1
MERCHANT2
MERCHANT3
MERCHANTN

FIG. 2

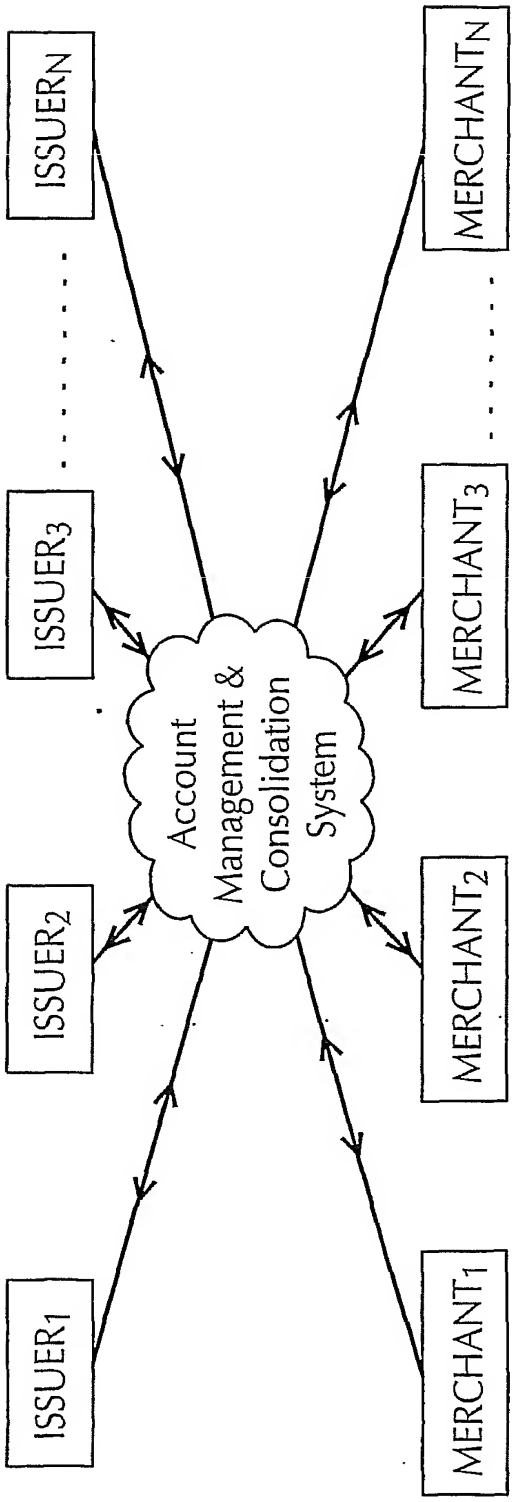
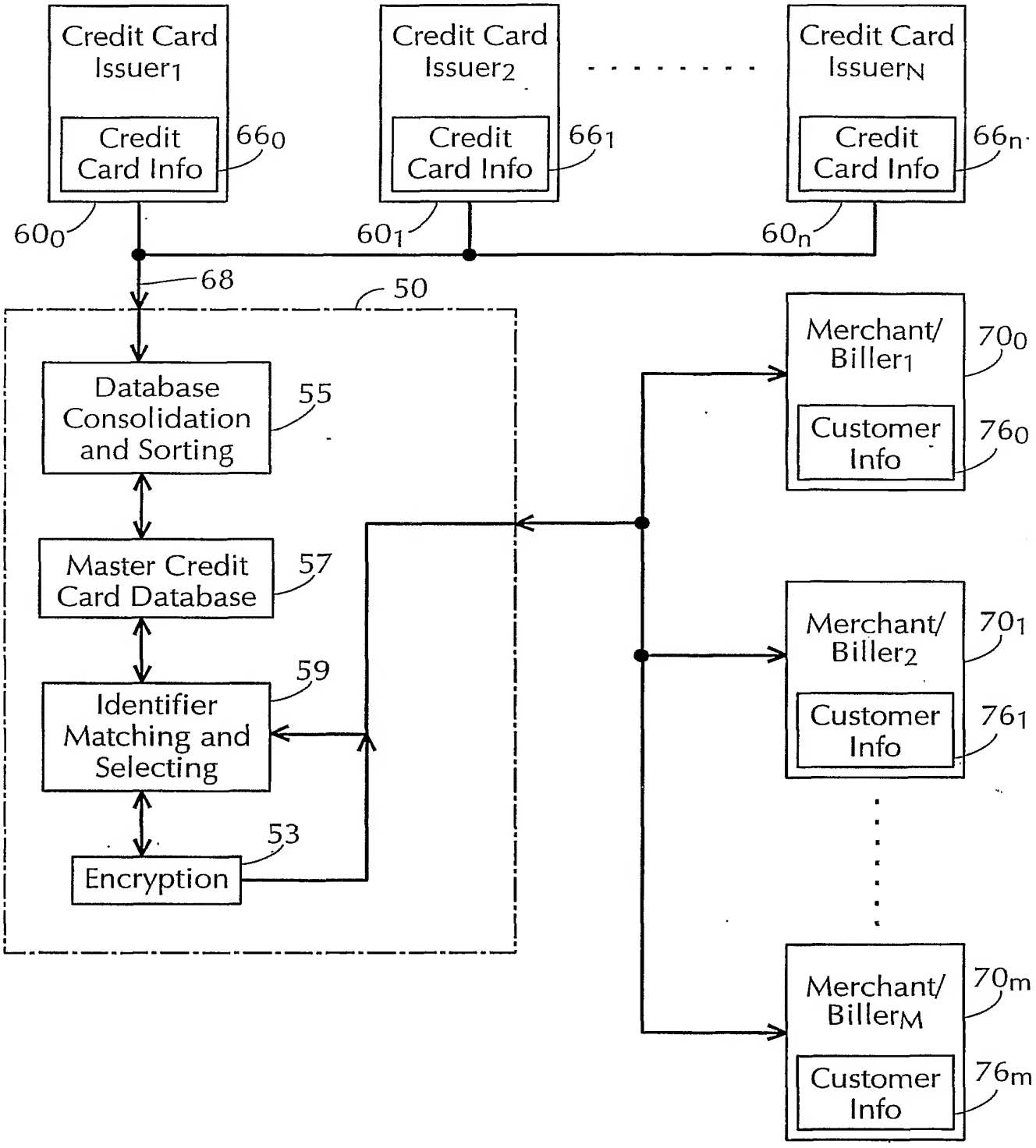

ISSUER1
ISSUER2
ISSUER3
ISSUERN
Account Management & Consolidation System
MERCHANT1
MERCHANT2
MERCHANT3
MERCHANTN

FIG. 3


Credit Card Issuer1
Credit Card Info
660
Credit Card Issuer2
Credit Card Info
661
Credit Card IssuerN
Credit Card Info
66n
600
601
60n
68
50
Database Consolidation and Sorting
55
Master Credit Card Database
57
Identifier Matching and Selecting
59
Encryption
53
Merchant/ Biller1
700
Customer Info
760
Merchant/ Biller2
701
Customer Info
761
Merchant/ BillerM
70m
Customer Info
76m

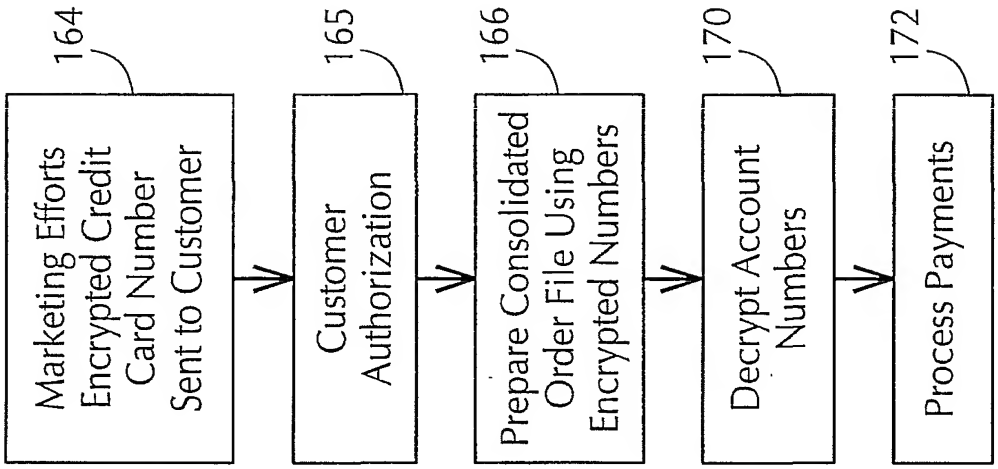

Marketing Efforts Encrypted Credit Card Number Sent to Customer
164
Customer Authorization
165
Prepare Consolidated Order File Using Encrypted Numbers
166
Decrypt Account Numbers
170
Process Payments
172

FIG. 7

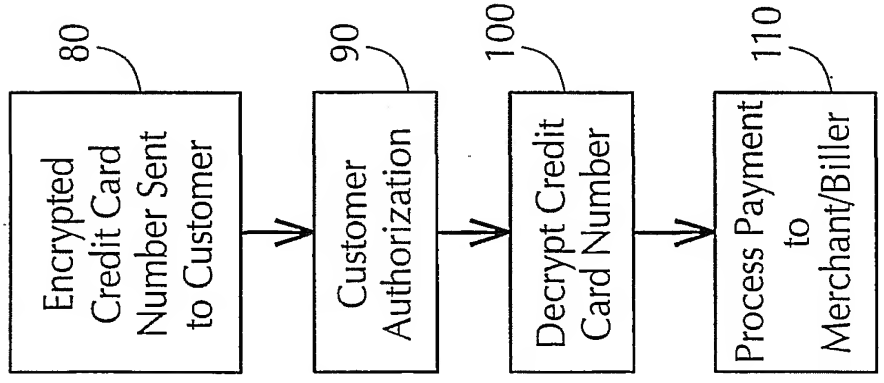

Encrypted Credit Card Number Sent to Customer
80
Customer Authorization
90
Decrypt Credit Card Number
100
Process Payment to Merchant/Biller
110

FIG. 4

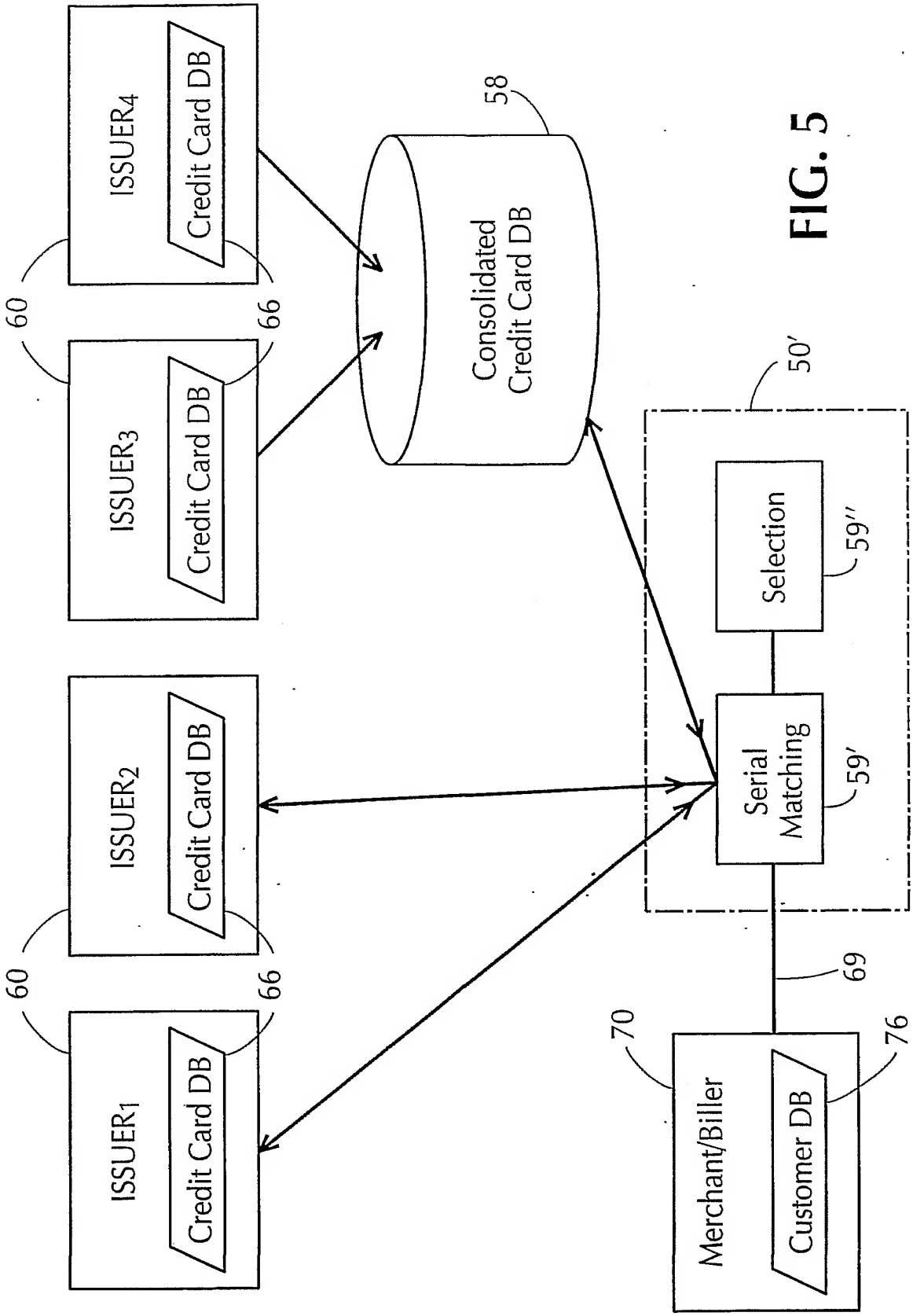

ISSUER4
Credit Card DB
ISSUER3
Credit Card DB
ISSUER2
Credit Card DB
ISSUER1
Credit Card DB
60
66
58
Consolidated Credit Card DB
50'
Selection
59''
Serial Matching
59'
69
70
Merchant/Biller
Customer DB
76

FIG. 5

FIG. 6

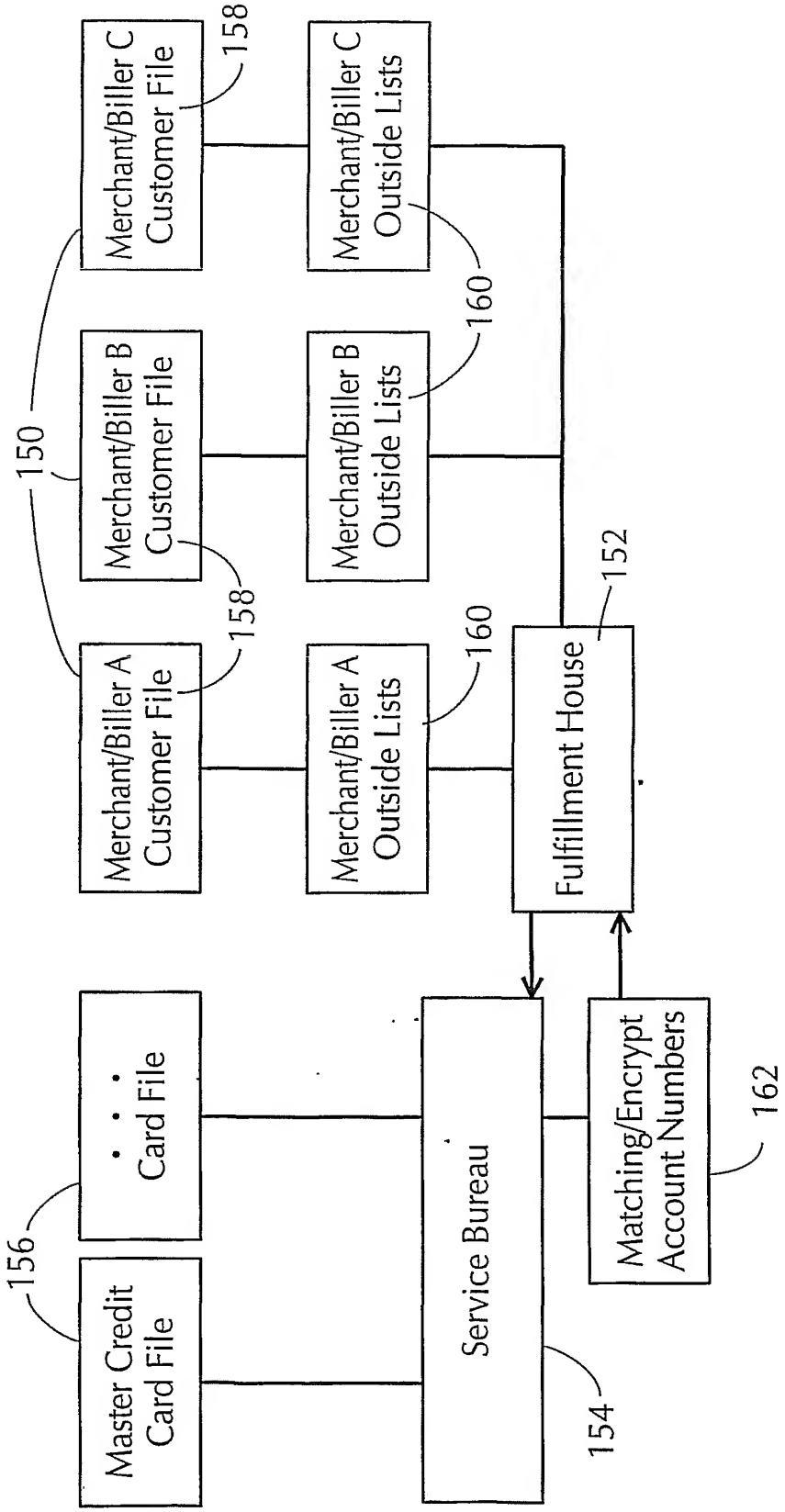
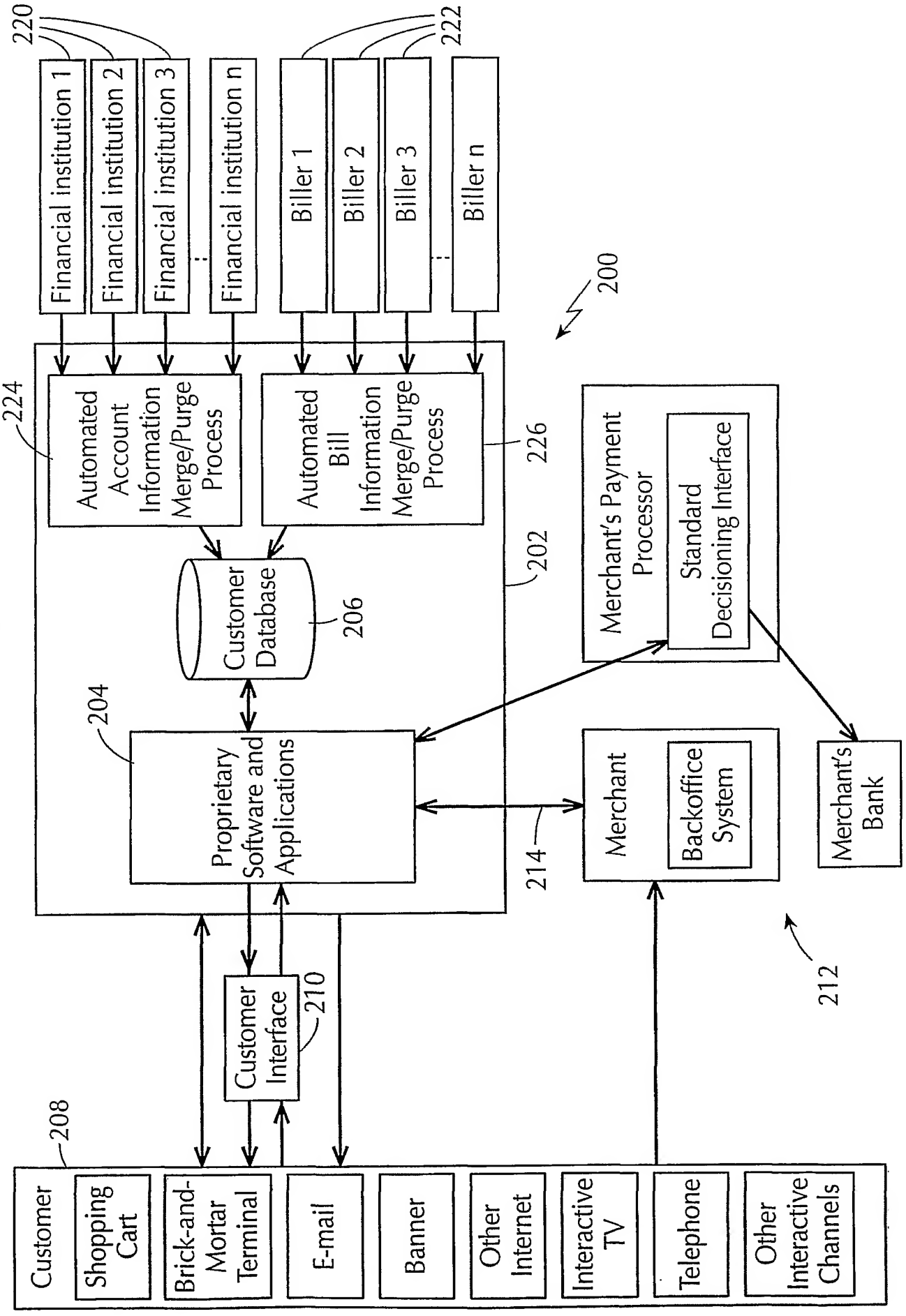

Merchant/Biller C Customer File
158
Merchant/Biller C Outside Lists
Merchant/Biller B Customer File
Merchant/Biller B Outside Lists
160
150
Merchant/Biller A Customer File
158
Merchant/Biller A Outside Lists
160
Fulfillment House
152
Card File
Master Credit Card File
156
Service Bureau
154
Matching/Encrypt Account Numbers
162

FIG. 8


220
Financial institution 1
Financial institution 2
Financial institution 3
Financial institution n
222
Biller 1
Biller 2
Biller 3
Biller n
200
224
Automated Account Information Merge/Purge Process
Automated Bill Information Merge/Purge Process
226
202
Customer Database
206
Merchant's Payment Processor
Standard Decisioning Interface
204
Proprietary Software and Applications
Merchant
Backoffice System
Merchant's Bank
214
212
Customer Interface
210
208
Customer
Shopping Cart
Brick-and-Mortar Terminal
E-mail
Banner
Other Internet
Interactive TV
Telephone
Other Interactive Channels

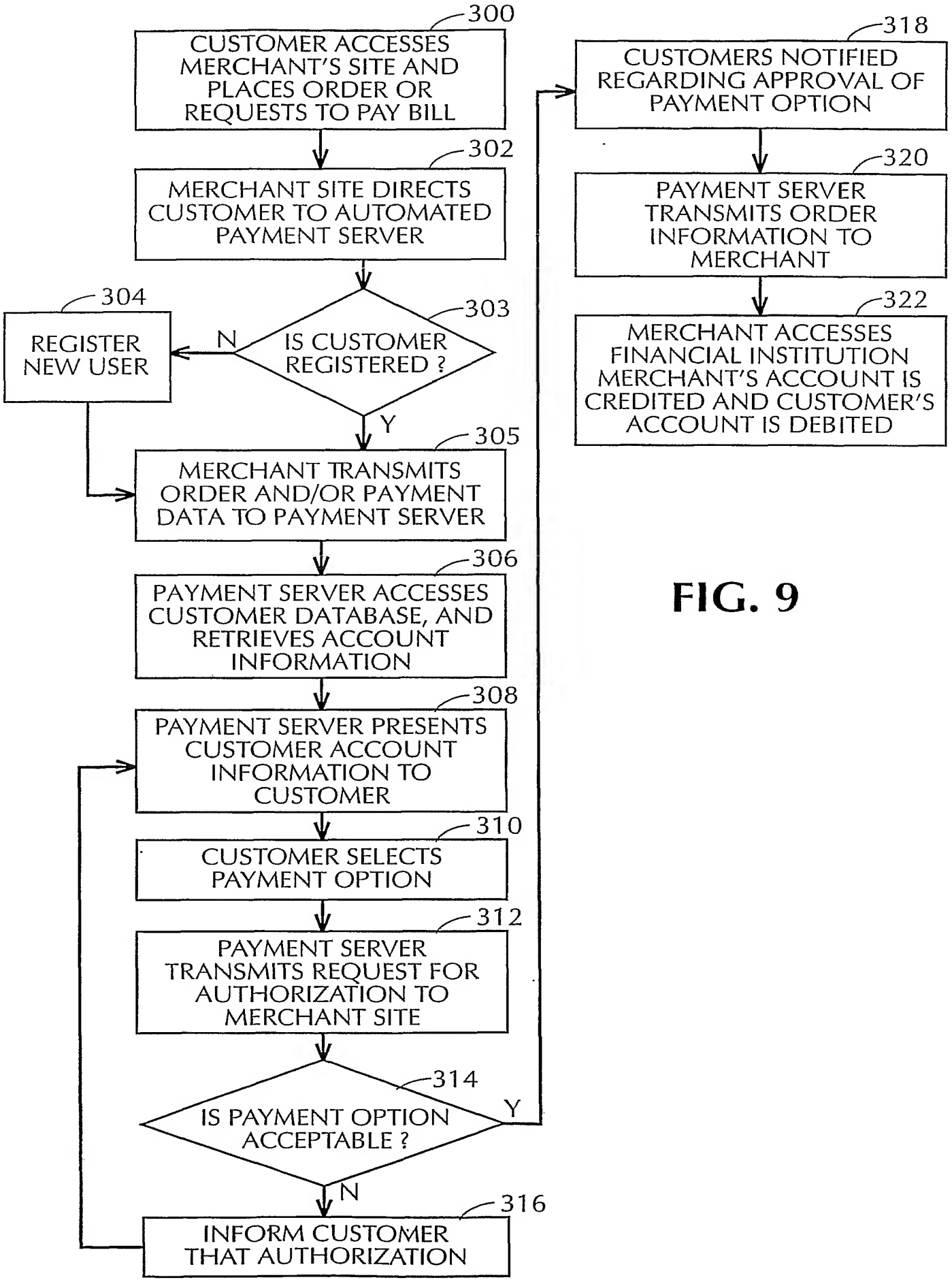

300
CUSTOMER ACCESSES MERCHANT'S SITE AND PLACES ORDER OR REQUESTS TO PAY BILL
302
MERCHANT SITE DIRECTS CUSTOMER TO AUTOMATED PAYMENT SERVER
303
IS CUSTOMER REGISTERED ?
N
304
REGISTER NEW USER
Y
305
MERCHANT TRANSMITS ORDER AND/OR PAYMENT DATA TO PAYMENT SERVER
306
PAYMENT SERVER ACCESSES CUSTOMER DATABASE, AND RETRIEVES ACCOUNT INFORMATION
308
PAYMENT SERVER PRESENTS CUSTOMER ACCOUNT INFORMATION TO CUSTOMER
310
CUSTOMER SELECTS PAYMENT OPTION
312
PAYMENT SERVER TRANSMITS REQUEST FOR AUTHORIZATION TO MERCHANT SITE
314
IS PAYMENT OPTION ACCEPTABLE ?
Y
N
316
INFORM CUSTOMER THAT AUTHORIZATION
318
CUSTOMERS NOTIFIED REGARDING APPROVAL OF PAYMENT OPTION
320
PAYMENT SERVER TRANSMITS ORDER INFORMATION TO MERCHANT
322
MERCHANT ACCESSES FINANCIAL INSTITUTION MERCHANT'S ACCOUNT IS CREDITED AND CUSTOMER'S ACCOUNT IS DEBITED

FIG. 9

FIG. 10

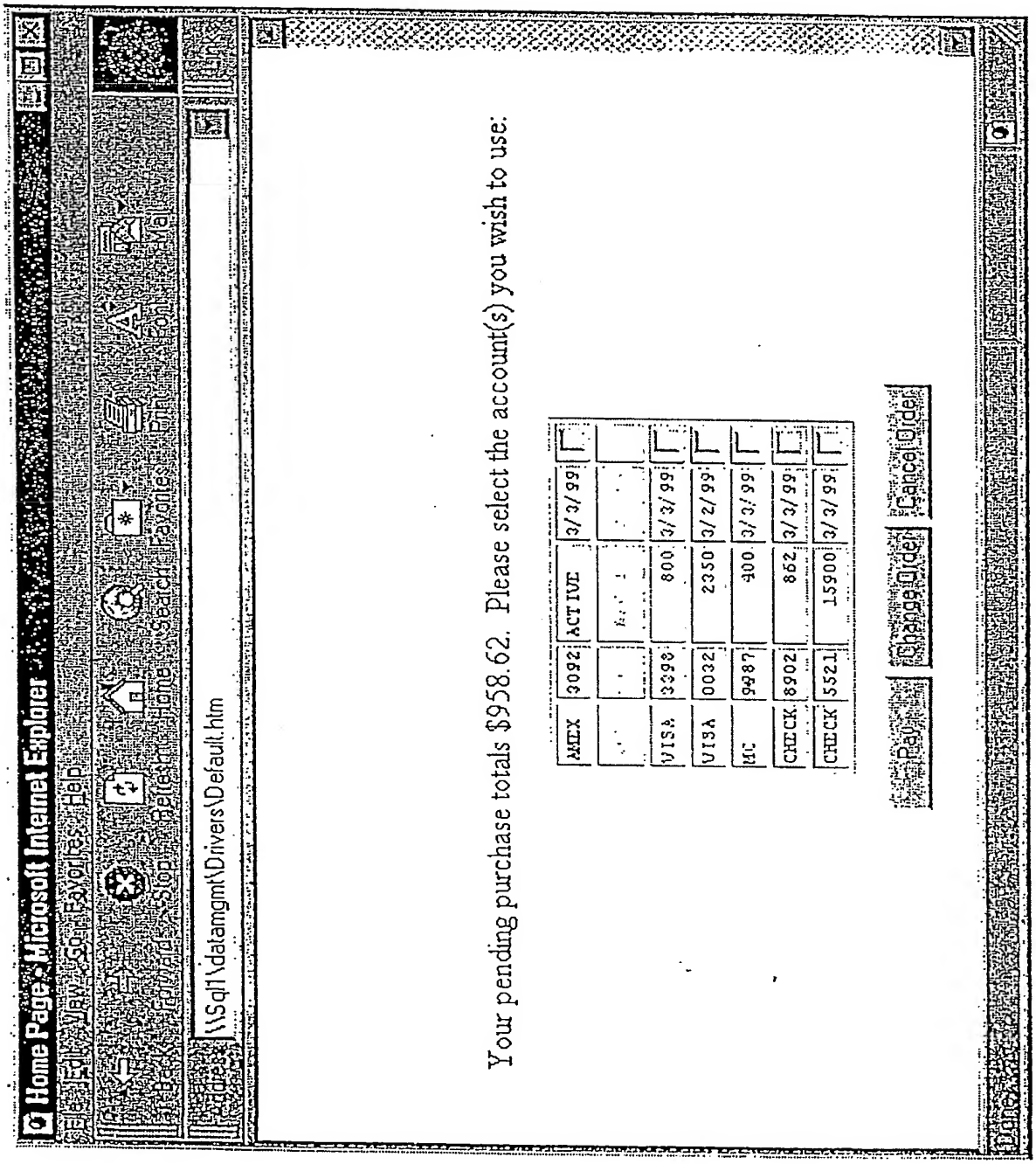

Home Page - Microsoft Internet Explorer
File Edit View Go Favorites Help
Back Forward Stop Refresh Home Search Favorites
Address \\Sql1\datamgmt\Drivers\Default.htm
Your pending purchase totals $958.62. Please select the account(s) you wish to use:
AMEX 3092 ACTIVE 3/3/99
VISA 3398 800 3/3/99
VISA 0032 2350 3/2/99
MC 9987 400 3/3/99
CHECK 8902 862 3/3/99
CHECK 5521 15900 3/3/99
Pay Now
Change Order
Cancel Order

FIG. 11

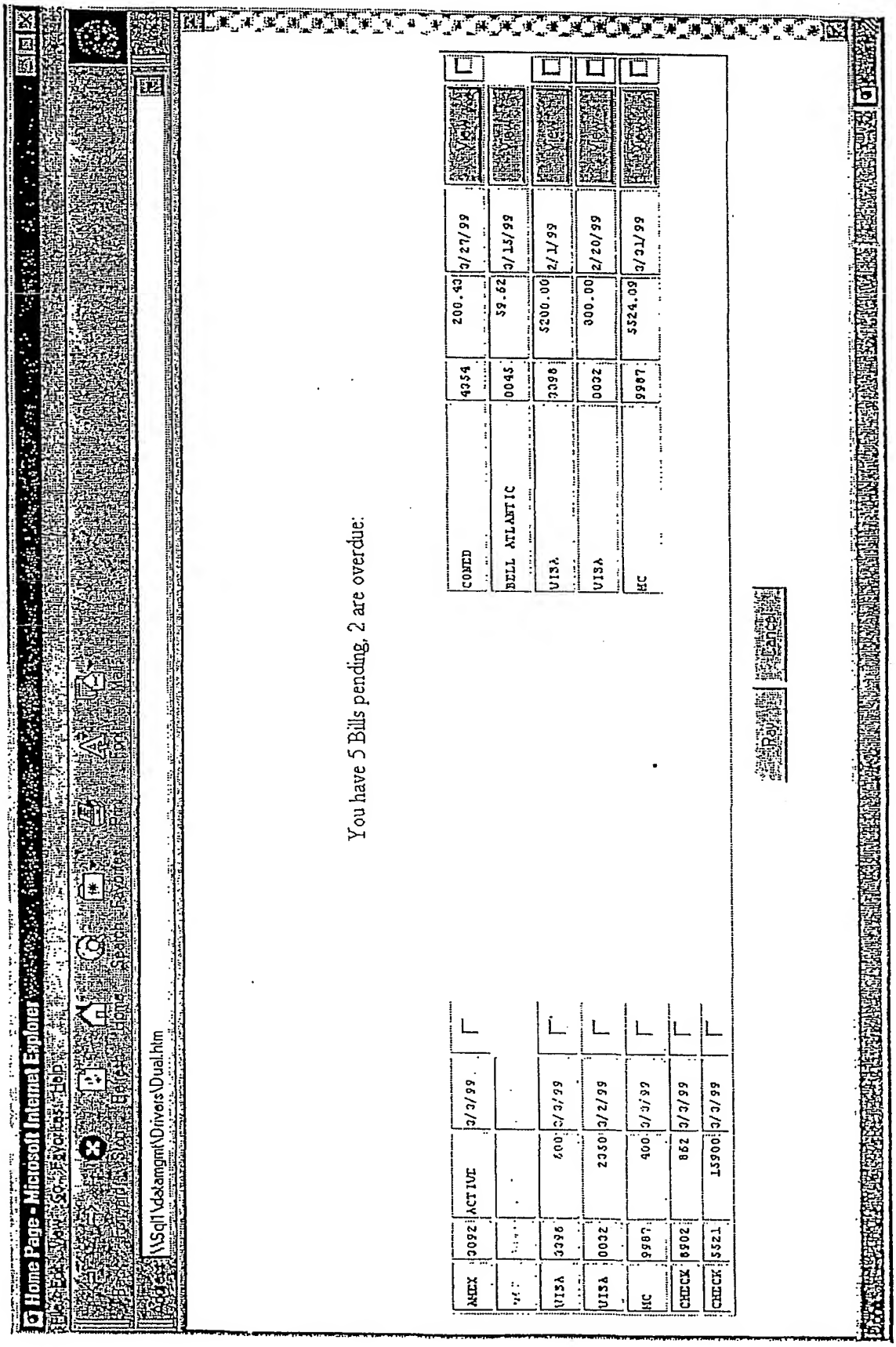
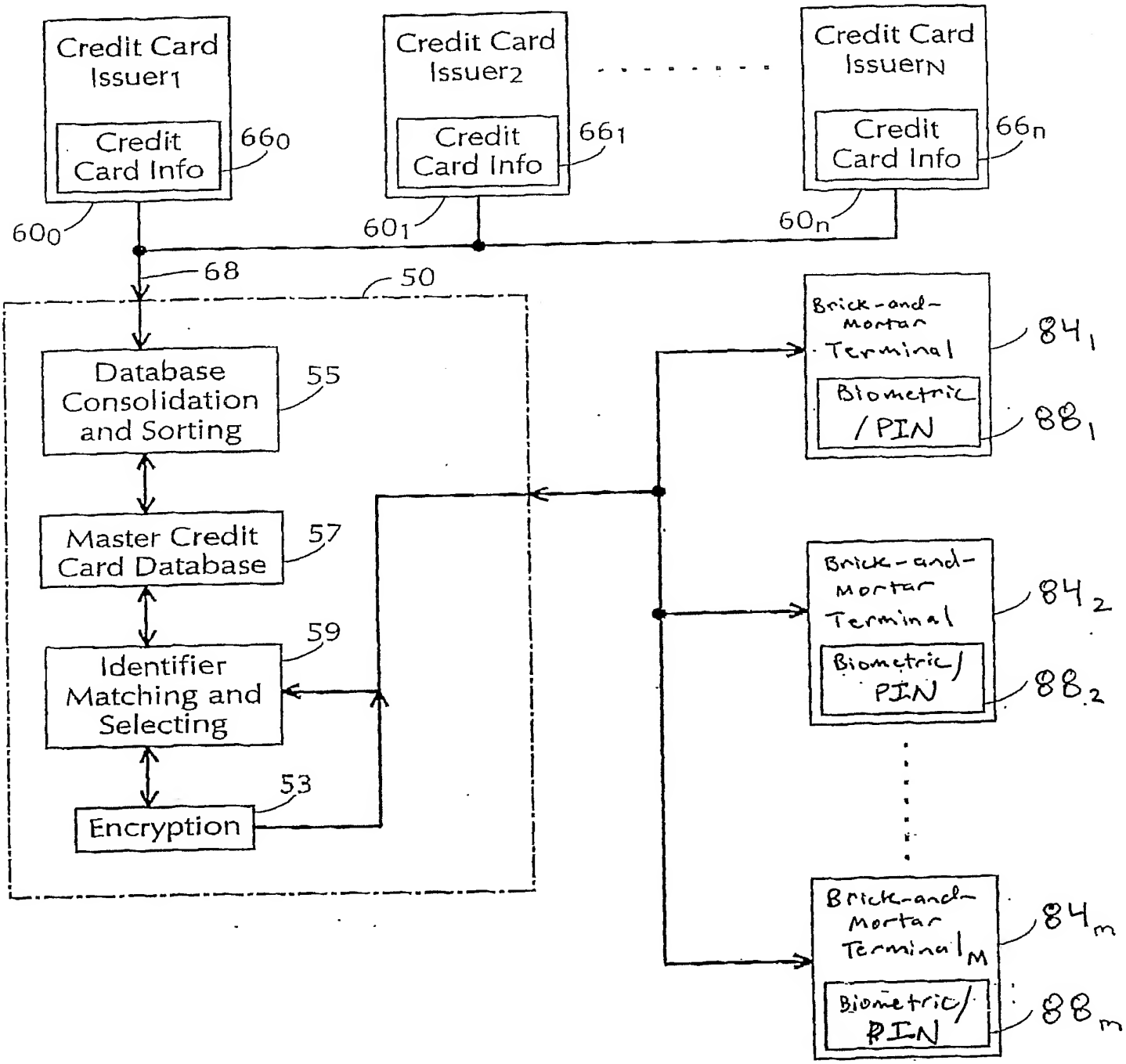

Home Page - Microsoft Internet Explorer
\\Sql1\dataamgmt\Drivers\Dual.htm
You have 5 Bills pending, 2 are overdue.
AMEX 0092 ACTIVE 3/3/99
VISA 3396 400 3/3/99
VISA 0032 2350 3/2/99
MC 9987 400 3/3/99
CHECK 8902 862 3/3/99
CHECK 5521 15900 3/3/99
COMED 4054 200.43 2/27/99
BELL ATLANTIC 0045 59.62 3/13/99
VISA 3396 $200.00 2/1/99
VISA 0032 300.00 2/20/99
MC 9987 $524.09 3/21/99

FIG. 12


Credit Card Issuer1
Credit Card Info
660
600
Credit Card Issuer2
Credit Card Info
661
601
Credit Card IssuerN
Credit Card Info
66n
60n
68
50
Database Consolidation and Sorting
55
Master Credit Card Database
57
Identifier Matching and Selecting
59
Encryption
53
Brick-and-Mortar Terminal
841
Biometric/PIN
881
Brick-and-Mortar Terminal
842
Biometric/PIN
882
Brick-and-Mortar TerminalM
84m
Biometric/PIN
88m